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Publication Date

2024-06-01

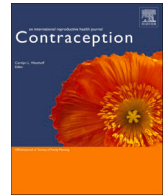
DOI

10.1016/j.contraception.2024.110416

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Abortion pills on TV: An exploratory study of the associations between abortion plotline viewership and beliefs regarding in-clinic and self-managed medication abortion^{☆,☆☆}



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ARTICLE INFO

Article history:

Received 11 December 2023

Received in revised form 21 February 2024

Accepted 26 February 2024

Keywords:

Abortion

Audience studies

Medication abortion

Self-managed abortion

Television studies

ABSTRACT

Objectives: Entertainment television is an influential source of health information, including about reproductive health. We investigated the association between exposure to television plotlines about medication abortion on audience awareness and beliefs about medication abortion.

Study design: We administered a national cross-sectional online survey from December 2021 to January 2022 with a probability-based sample of people assigned female at birth. We asked respondents to select plotlines they had seen from a list of seven that portrayed medication abortion. Among the 3425 people who responded to plotline items, 3340 responded to our outcome measures. Using weighed multivariable analyses, we examined adjusted relationships between exposure to specific types of abortion plotlines and awareness of and beliefs about medication abortion medical safety.

Results: We found that audience exposure to medication abortion plotlines in which the medication abortion was obtained from a clinic and portrayed as safe was associated with greater awareness of medication abortion compared to nonexposure (RR: 1.68; 95% CI: 1.17, 2.40). Exposure to plotlines that portrayed MA or self-managed MA as safe was associated with audience beliefs that medication abortion is safe.

Conclusions: This study demonstrates that the content of abortion plotlines and exposure to accurate information may be connected to audience awareness of and beliefs about abortion.

Implications: In a climate of misinformation about abortion, audience exposure to medically accurate television plotlines about medication abortion may be an effective way to increase awareness of medication abortion and influence beliefs about medication abortion safety.

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1. Introduction

Entertainment television is an influential source of information about reproductive health for US audiences [1]. Some studies find modest positive effects of media exposure on viewers, such as increasing safer sex behaviors and increasing knowledge about contraception, yet others find that exposure to educational content in media can result in negative effects, such as increased feelings of stigmatization related to parenthood and increased feelings of fear

about birth [2–5]. Differing theories of narrative influence undergird these studies, including “entertainment education,” defined as “the process of purposefully designing and implementing a media message to both entertain and educate in order to increase audience members’ knowledge about an educational issue” [6]. Researchers often employ entertainment education as a theoretical framework to explore if, how, and why media influence audiences. To date, little research has explored whether entertainment education is an appropriate theory to explore the potential influence of abortion depictions on audiences.

Over the last decade, research has documented a rise in depictions of abortion onscreen, yet these representations often misconstrue the reality of abortion care in the United States, including overrepresenting medical risk and underrepresenting barriers to care [7,8]. Television often does not depict the abortion procedure

^{*} Conflicts of interest: The authors report that there are no competing interests to declare.

^{**} Funding: This research was supported by a core grant from Advancing New Standards in Reproductive Health (Dr. Biggs).

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itself, and when it does, disproportionately represents procedural abortion in comparison to medication abortion [9]. Onscreen representations of medication abortion often obscure important details about the process, such as the physical experience of the abortion itself [10]. Additionally, no television representations previously studied have depicted a safe, self-managed medication abortion [9,11].

These misrepresentations are especially concerning given current political and cultural climates in the United States. The infrequency and inaccuracy of popular culture depictions of MA are one likely contributor to the lack of awareness and knowledge surrounding these medications [12,13]. Self-managed medication abortion is a medically safe yet legally risky practice that a rising number of abortion patients pursue [14,15]. Because antiabortion politicians are attempting to restrict both the provision of abortion and the dissemination of accurate abortion information, television may provide an opportunity outside of political interference in which audiences can learn about medication abortion [16].

Limited research has investigated the relationship between television abortion portrayals and audience knowledge. These studies find that various factors influence whether and how audiences are impacted by abortion depictions, including how the media frames abortion whether the plotline conveys progressive or regressive gender norms, and the reasons that a character seeks an abortion [17–20]. A previous study found that audience exposure to a medically accurate depiction of medication abortion increased knowledge compared to nonexposure but had no measurable effect on support for abortion [11]. Given both the increased use of medication abortion nationwide and the increase in abortion plotlines on television, it is possible that audiences are exposed to more plotlines that incorporate medication abortion than in previous years [21]. This study aims to understand if exposure to television depictions of medication abortion, either provided in-clinic or self-managed, relates to US audience's awareness of and beliefs about medication abortion.

2. Methods

2.1. Data collection

We fielded a cross-sectional online survey in December 2021 through January 2022 to English- and Spanish-speaking reproductive-aged people (ages 15–49) assigned female (AFAB) or male (AMAB) at birth. Ipsos Public Affairs administered the survey to members of the KnowledgePanel, a nationally representative, probability-based online household panel. Ipsos uses probability-based sampling techniques of all US addresses to recruit panel members so that the sample can be weighted to be representative of the noninstitutionalized US population. Design weights were constructed using benchmarks (race/ethnicity, census region, metropolitan status, educational attainment, and household income) obtained from the March 2021 Census Current Population Survey [22]. The University of California, San Francisco Institutional Review Board approved all study activities.

Respondents completed a survey on reproductive health experiences, awareness, and knowledge of MA, and related topics. Data collection was considered complete when the target sample was met, with a final sample of 7376 respondents. A random sample of half of the adult (ages 18–49) AFAB sample was asked questions about television shows depicting abortion plotlines. Researchers selected abortion plotlines from a publicly available database, abortiononscreen.org, searching for all known medication abortion plotlines from 2019 to 2021, a total of seven plotlines. Additional details on the data collection procedures and survey content for this study have been published [12,23].

2.2. Outcome variables

Our primary outcome variables included awareness of medication abortion, beliefs about medical safety of MA, and beliefs about medical safety of self-managed medication abortion. We described medication abortion to respondents, then asked, “Before now, had you ever heard of these abortion medications or abortion pills?” The final variable was dichotomized as a “yes/no” response.

To assess respondents' beliefs about the medical safety of medication abortion with pills obtained directly from a clinic or health care provider, we asked, “To what extent do you agree or disagree that it is usually safe for a pregnant person to end a pregnancy using abortion pills obtained at a clinic or doctor's office?” For beliefs about the medical safety of self-managed medication abortion, we asked, “To what extent do you agree or disagree that it is usually safe for a pregnant person to end a pregnancy using abortion pills obtained outside the health care system (e.g., from the internet, a friend, etc.)?” For both questions, we collected responses in a 5-point Likert-scale format, including “strongly disagree,” “disagree,” “neither agree nor disagree,” “agree,” and “strongly agree.”

2.3. Independent variables

Our primary independent variable of interest was whether respondents had seen certain plotlines depicting medication abortion, either with pills obtained from a clinic, which we refer to as MA in this paper, or from outside the health care system, or self-managed medication abortion. We asked, “Do you remember the following plotline(s)?” and listed the television shows with a brief description of the abortion plotline. [Figure 1](#) includes more details about each plotline.

We constructed a dichotomous variable to assess participant exposure to medication abortion plotlines, categorized as having seen one or more plotlines or having seen no plotlines. The final independent variable used in our multivariable analyses consisted of five categories based on the type of abortion plotline(s) each participant had seen: no plotlines, only plotlines that depicted medication abortion with pills obtained from a health care provider where medication abortion was portrayed as safe (*Grey's Anatomy*, *Handmaid's Tale*, *A Million Little Things*, *Vida*), only plotlines that depicted self-managed medication abortion as safe (*Orange is the New Black*), only plotlines that depicted self-managed medication abortion as unsafe (*Chicago Med*, *Law & Order: SVU*), or two or more of these plotlines, which could include both plotlines that portray safe and unsafe medication abortions.

2.4. Covariates

We selected model covariates a priori, based on identities that have had differential outcomes on medication abortion awareness and knowledge [12,13]. These included age, race/ethnicity, LGBTQ + identity, education level, religion, political party, geographic region, geographic metropolitan statistical area, pregnancy and abortion history, and federal poverty level status.

2.5. Analyses

Our analytic sample included adults (ages 18–49) assigned female at birth (AFAB) who completed the questions about abortion plotline viewing history and beliefs around medication abortion safety. We assessed frequencies of participant sociodemographic characteristics, independent variables, and outcomes. We applied sampling weights to produce estimates representative of the general, adult noninstitutionalized US AFAB population and to account for the probabilistic sampling frame and any differential

Television Show (Network)	Abortion Plotline	Where medication abortion pills were obtained	Medication abortion depicted as safe or unsafe
Chicago Med (NBC)	<p>“Tell Me the Truth” Airdate: April 3, 2019</p> <p>A teenager named Jenny arrives in the ER after ingesting abortion pills that she ordered online. Jenny becomes ill and requires a procedural abortion to end her pregnancy.</p>	Outside healthcare system	Unsafe
Orange is the New Black (Netflix)	<p>“God Bless America” Airdate: July 26, 2019</p> <p>Santos tries to end her pregnancy by drinking tea; it does not work. Correctional officers will not allow her to leave prison for an abortion. An administrator obtains abortion pills from her own doctor and gives them to Santos.</p>	Outside healthcare system	Safe
Grey’s Anatomy (ABC)	<p>“Papa Don’t Preach” Airdate: November 7, 2019</p> <p>Cassie arrives at the ER with her son, after taking herbs to end her pregnancy at home. She obtains medication abortion pills at the hospital.</p>	Clinic / provider	Safe
Vida (STARZ)	<p>Episode 21 Airdate: May 24, 2020</p> <p>Emma visits a clinic and receives pills for a medication abortion, which she takes immediately. She experiences nausea and vomiting.</p>	Clinic / provider	Safe
Law & Order SVU (NBC)	<p>“Sightless in a Savage Land” Airdate: January 7, 2021</p> <p>A teenager named Nydia is found outside a hospital, losing a lot of blood. The doctors discover that she has mifepristone and misoprostol in her bloodstream. Nydia’s guardian is arrested for raping her, and for secretly giving her abortion pills in a smoothie.</p>	Outside healthcare system	Unsafe
A Million Little Things (ABC)	<p>“Miles Apart” Airdate: March 18, 2021</p> <p>Having recently completed chemotherapy, Maggie discovers she is pregnant. She visits Planned Parenthood, receives abortion pills, and takes them at home.</p>	Clinic / provider	Safe
The Handmaid’s Tale (Hulu)	<p>“Milk” Airdate: May 5, 2021</p> <p>In a flashback, Janine discovers she’s pregnant and decides to have an abortion. She first visits a crisis pregnancy center, where she is pressured to continue the pregnancy. She later visits a doctor who provides her with abortion pills.</p>	Clinic / provider	Safe

Fig. 1. Abortion plotline categorized by source of medication abortion pills and whether medication abortion was depicted as safe; e-survey data collected virtually in the United States, December 2021–January 2022.

Table 1
Sociodemographic characteristics of the study sample by exposure to abortion plotlines with weighted percentages (U.S. N=2511)

Sociodemographic characteristics	Has seen one or more abortion plotlines (N = 1148)	Weighted %	Has not seen any abortion plotlines (N = 1363)	Weighted %	Total (N = 2511)	Weighted %
Age						
18–24	71	17.0%	95	18.3%	166	17.8%
25–29	189	19.1%	212	18.2%	401	18.6%
30–39	462	35.8%	505	31.7%	967	33.4%
40–49	426	28.1%	551	31.8%	977	30.2%
Education						
High school or less	156	24.6%	227	28.3%	383	26.7%
Some college	308	28.8%	376	30.9%	684	30.0%
Bachelor's degree or higher	684	46.6%	760	40.8%	1444	43.3%
Race/Ethnicity						
Black or African American	87	12.5%	131	13.7%	218	13.2%
Hispanic	206	17.9%	274	22.8%	480	20.7%
White	772	59.2%	861	53.8%	1633	56.1%
Multiracial	46	6.0%	42	4.2%	88	5.0%
Other race	37	4.4%	55	5.5%	92	5.0%
LGBTQ+ identity						
No	975	83.3%	1201	87.2%	2176	85.5%
Yes	171	16.6%	160	12.5%	331	14.3%
Missing	2	0.1%	2	0.3%	4	0.2%
Religion						
None	357	32.5%	402	31.3%	759	31.8%
Catholic	266	22.1%	306	23.8%	572	23.1%
Evang/Protestant	296	27.0%	404	28.5%	700	27.8%
Other Christian religion	162	12.1%	176	10.9%	338	11.4%
Other non-Christian religion	67	6.3%	70	5.2%	137	5.7%
Missing	0	0.0%	5	0.3%	5	0.2%
Political party						
Strong or somewhat Democrat	765	67.2%	845	63.9%	1610	65.3%
Independent/undecided/other	27	1.9%	53	3.6%	80	2.9%
Strong or somewhat Republican	354	30.8%	464	32.4%	818	31.7%
Missing	2	0.1%	1	0.1%	3	0.1%
Geographic region						
Northeast	175	17.1%	218	17.3%	393	17.2%
Midwest	320	20.7%	360	20.5%	680	20.6%
South	415	40.2%	466	37.2%	881	38.5%
West	238	22.0%	319	25.0%	557	23.7%
Geographic metropolitan statistical area						
Nonmetropolitan	143	11.5%	167	10.4%	310	10.9%
Metropolitan	1005	88.5%	1196	89.6%	2201	89.1%
Federal poverty level status						
< 100%	169	10.5%	198	10.3%	367	10.4%
100%–199%	177	12.2%	202	13.8%	379	13.1%
≥200%	802	77.3%	963	75.9%	1765	76.5%
Pregnancy and abortion history						
Never pregnant	455	44.4%	523	41.9%	978	43.0%
Has been pregnant, no abortions	539	43.6%	658	44.5%	1197	44.1%
Has had an abortion	152	11.9%	177	13.1%	329	12.6%
Missing	2	0.1%	5	0.5%	7	0.3%

e-survey data collected virtually in the United States, December 2021–January 2022.

nonresponse. Our analytic sample was restricted to people who completed the plotline questions and outcome variables.

We conducted adjusted multivariable regressions to assess the relationship between having seen certain abortion plotlines with awareness of medication abortion, and adjusted multinomial regressions to assess the relationship between having seen these plotlines with participant beliefs regarding medical safety of medication abortion and medical safety of self-managed medication abortion. All analyses were conducted in Stata 17.

3. Results

Of the 15,345 adult AFAB panel members approached, 7360 were eligible and 6841 respondents completed the survey (45% response rate). Among the half who received questions about abortion plotlines in television shows ($n = 3425$), 867 did not complete them. An additional 47 respondents did not respond to the questions measuring our outcomes, leaving a final analytic sample of 2511 respondents. Table 1 shows the sociodemographic characteristics of

study participants by exposure to one or more abortion plotlines, with weighted percentages (Table 1). When assessing differences between the group who had not seen any plotlines and those who had seen one or more, we found significant differences across age, education, race/ethnicity, political party, and geographic region (Table 1).

Table 2 displays frequencies and weighted percentages of show viewership by type of plotline (Table 2). The figures for each television show depict the total number of participants who reported seeing that show; respondents could select more than one plotline.

A majority of participants (65%) reported awareness of medication abortion (Table 3). Over half (55%) agreed that medication abortion with pills obtained from a clinic was safe, while only 8% of participants agreed that medication abortion with pills obtained from outside the health care system was safe (Table 3).

Adjusted multivariable regressions assessing the relationships between having seen certain plotlines with awareness of medication abortion demonstrated that those who had seen only plotlines that depicted a safe medication abortion with pills obtained from a clinic

Table 2

Respondent viewership of medication abortion plotlines by whether plotline portrayed medication abortion as safe or unsafe (U.S. N=2511)

Viewership of medication abortion plotlines	Raw N	Weighted %
Viewed any medication abortion plotlines		
No	1363	57.0%
Yes		
1 plotline	656	24.5%
2 or more plotlines	492	18.5%
Viewed one or more plotlines that portray the use of medication abortion obtained from a clinic as safe	407	15.2%
Grey's Anatomy	231	8.8%
The Handmaid's Tale	459	16.3%
A Million Little Things	246	8.8%
Vida	25	1.2%
Viewed a plotline that portrays the use of medication abortion obtained from outside the health care system as safe	155	5.6%
Orange is the New Black	472	17.3%
Viewed one or more plotlines that portrays medication abortion obtained outside the health care system as unsafe	159	5.9%
Chicago Med	121	4.5%
Law & Order: SVU	356	14.3%
Viewed two or more types of plotlines	427	16.3%

e-survey data collected virtually in the United States, December 2021–January 2022.

Table 3

Respondent awareness of and beliefs about the safety of medication abortion and self-managed medication abortion (U.S. N=2511)

Outcome variables	Raw N	Weighted %
Aware of medication abortion		
Yes	1734	67.3%
No or not sure	777	32.7%
Medication abortion with pills obtained from a clinic is safe		
Agree	1458	58.3%
Disagree	479	19.1%
Neither agree nor disagree	574	22.6%
Medication abortion with pills obtained from outside a clinic is safe		
Agree	218	8.0%
Disagree	1810	71.8%
Neither agree nor disagree	483	20.2%

e-survey data collected virtually in the United States, December 2021–January 2022.

Table 4

Type of plotline viewed and awareness of medication abortion (U.S. N=2511)

Type of plotline viewed	Aware of medication abortion		
	Weighted %	RRR	CI
Plotline			
None	64.7%	[Ref.]	-
Safe, medication abortion pills from clinic	77.4%	1.61 ^a	[1.11, 2.34]
Safe, self-managed medication abortion	65.9%	0.92	[0.56, 1.49]
Unsafe, self-managed medication abortion	62.9%	1.00	[0.58, 1.73]
Multiple plotlines	71.1%	1.32	[0.91, 1.92]

Multivariable regressions adjusted for age, education level, race/ethnicity, LGBTQ+ status, religion, political party, geographic region, geographic metropolitan statistical area, federal poverty level status, pregnancy, and abortion history.

e-survey data collected virtually in the United States, December 2021–January 2022.

^a $p < 0.05$.

were more likely to be aware of medication abortion than those who had not seen any plotlines (RRR: 1.61; 95% CI: 1.11, 2.34) (Table 4).

In adjusted multinomial regressions assessing the relationship between plotlines seen and beliefs about the medical safety of medication abortion and self-managed medication abortion, we

found that exposure to abortion plotlines that depict medication abortion as safe was associated with higher likelihood of believing medication abortion and self-managed medication abortion were safe (Table 5). Those who had seen plotlines portraying medication abortion from a clinic as safe were more likely than those who had not seen any plotlines to agree that medication abortion is safe (RRR: 1.62; 95% CI: 1.04, 2.53) than neither agree nor disagree, and more likely to agree that self-managed medication abortion is safe (RRR: 3.03; 95% CI: 1.58, 5.81) than neither agree nor disagree (Table 5). Similarly, those who had seen plotlines that portray self-managed medication abortion as safe were more likely to agree that self-managed medication abortion is safe (RRR: 2.95; 95% CI: 1.21, 7.21), than neither agree nor disagree. (Table 5). Compared to having seen no plotlines, having seen multiple types of plotlines was also associated with a higher likelihood of agreeing that medication abortion with pills obtained from a clinic is safe (RRR: 1.67, 95% CI: 1.09, 2.26), and that self-managed medication abortion is safe (RRR: 3.02, 95% CI: 1.63, 5.62), than neither agreeing nor disagreeing (Table 5).

4. Discussion

We found that audience exposure to safe medication abortion plotlines is associated with awareness of medication abortion and may have an impact on beliefs about the medical safety of medication abortion as compared to nonexposure. Specifically, exposure to plotlines that depict medication abortion administered safely from a clinic was associated with greater audience awareness of medication abortion, and having seen plotlines that depict any type of medication abortion as safe was largely associated with increased audience beliefs that both clinic-administered and self-managed medication abortion were safe.

Our findings indicate that people who have seen entertainment media depicting safe medication abortion may have a more accurate understanding of medication abortion safety than those not exposed to this content. Furthermore, participants who had seen plotlines portraying different mechanisms of obtaining medication abortion pills (from a clinic or from other sources) as both safe and unsafe still agreed that medication abortion is safe. While not all the plotlines in our study depicted the medication abortion process or protocol accurately, characters who had unsafe medication abortions ultimately received medical care resulting in complete, safe abortions. Specifically, two plotlines in our sample portrayed characters as experiencing serious adverse complications from medication abortions that are exceedingly rare among real abortion patients [24]. The fact that these characters obtained care from trusted medical providers may have suggested to audiences that their abortions were ultimately safe.

Our outcomes align with previous studies that indicate that watching multiple episodes over time, or “cumulative exposure” to abortion content, may increase the likelihood of association between exposure and knowledge outcomes [25]. Many studies assessing the effects of entertainment education on knowledge, attitudes, and beliefs test the effect of one plotline or episode on an audience, or multiple episodes from the same series at one specific point in time. Our results assessing participant beliefs regarding medication abortion safety suggest that audience exposure to multiple types of abortion plotlines across multiple television series, over time, may be related to increases in beliefs that medication abortion is safe when administered in any context.

Having seen only plotlines depicting safe, clinic-administered medication abortion was associated with greater overall awareness of medication abortion. However, having seen plotlines with self-managed medication abortion—both safe and unsafe—was not associated with awareness of medication abortion. Knowledge of self-managed medication abortion is relatively low, even among patients

Table 5
Type of plotline viewed and beliefs about the safety of medication abortion (U.S. N=2511)

Type of plotline viewed	Believe that medication abortion is safe				Believe that self-managed medication abortion is safe					
	Agree versus neither		Disagree versus neither		Agree versus neither		Disagree versus neither			
	Weighted % (agree)	RRR	CI	Weighted % (disagree)	RR	CI	Weighted % (disagree)	RRR	CI	
Plotline										
None	53.3%	[Ref.]	-	20.7%	[Ref.]	-	5.2%	[Ref.]	-	[Ref.]
Safe, medication abortion pills from clinic	66.6%	1.62 ^a	[1.04, 2.53]	15.8%	1.14	[0.64, 2.03]	12.5%	3.03 ^a	[1.58, 5.81]	1.24 [0.81, 1.92]
Safe, self-managed medication abortion	70.5%	1.66	[0.93, 2.94]	10.7%	0.62	[0.27, 1.40]	13.1%	2.95 ^a	[1.21, 7.21]	1.08 [0.59, 1.99]
Unsafe, self-managed medication abortion	54.5%	1.78	[0.91, 3.47]	27.2%	1.77	[0.89, 3.50]	3.9%	0.71	[0.17, 3.03]	1.08 [0.58, 1.99]
Multiple plotlines	65.4%	1.67 ^a	[1.09, 2.56]	16.7%	1.22	[0.70, 2.13]	13.3%	3.02 ^a	[1.63, 5.62]	1.31 [0.86, 2.02]

Multinomial regressions adjusted for age, education level, race/ethnicity, LGBTQ+ status, religion, political party, geographic region, geographic metropolitan statistical area, federal poverty level status, pregnancy, and abortion history. e-survey data collected virtually in the United States, December 2021–January 2022.

^a $p < 0.05$.

seeking abortions [26]. Two of the three instances of onscreen representations of self-managed medication abortion depicted this method as unsafe and requiring hospital-based care, and the other self-managed medication abortion plotline depicted a character receiving a single pill, no dialog or narration about the abortion pill protocol, and no confirmation that the abortion was completed. It is possible that these depictions were either too vague or too medical for audiences to interpret them as self-managed. These depictions stand in contrast to research on self-managed medication abortion, which finds that patients may obtain these medications online and self-administer them to have an effective, safe, and complete abortion at home [15].

Our study's primary limitation was our inability to assess whether the participants' awareness and beliefs surrounding medication abortion were solidified prior to seeing these plotlines or occurred because of viewing them. Though we inquired about participants' perspectives on medication abortion after they viewed the abortion plotlines, we were unable to measure a direct, causal effect of the plotlines on their awareness and beliefs. Additional research examining attitudes and knowledge of medication abortion prior to and after watching abortion plotlines would help evaluate the extent to which media depicting abortion directly influences viewers. Furthermore, exposure to abortion information and choosing to watch media depicting abortion may be influenced by preexisting political social, and religious beliefs, though our analyses adjusted for most known confounders of these relationships. This is especially important in a post-*Dobbs* context in which abortion legality varies by state, and entertainment media may be the accessible way to provide large audiences with accurate information about abortion safety and availability. Additionally, participants may have interpreted our survey question about seeking abortion pills online as relating to telehealth in which a patient speaks with a provider via video chat and then receives abortion pills. Our hope is that by phrasing the question as relating to abortion "outside the health care system," participants understood that we are inquiring about abortion without clinical supervision, whether in person or over the internet.

Despite these limitations, our study comprises a large, nationally representative sample who watched these plotlines of their own accord. However, there may have been some differential unmeasured nonresponse in our data collection process, limiting the generalizability of our results. There were some important demographic characteristics, such as detailed race categories whose sample sizes were too small or missing, limiting the generalizability of our findings to those population subgroups. Ultimately, our use of a nationally representative probability survey, application of design weights that account for differential nonresponse, and similarity of our weighted sample's demographic characteristics to other nationally representative samples of AFAB adults in the US strengthened the generalizability of our findings [23]. Given the known influence of media on health knowledge, our findings point to the importance of medically accurate abortion portrayals onscreen as source of abortion information in the United States.

Acknowledgments

The authors thank Aura Orozco-Fuentes, MSc, and Molly Battistelli, MPH, for their support toward successful implementation of the study, and Daniel Grossman, MD, for overall project mentorship.

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